



Canadian Nuclear Laboratories Port Hope Area Initiative

Application to Renew a Licence
for the Port Hope Project

Commission Hearing

November 22, 2022

CMD 22-H13.A



Port Hope Project Licence Renewal: CMD 22-H13.A

Presentation Outline

- Purpose of Hearing
- Project Overview
- Review of Licence Application
- Regulatory Oversight
- Performance Assessment
- Other Matters of Regulatory Interest
- Indigenous and Public Engagement
- Conclusions and Recommendations

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Purpose of Hearing

Canadian Nuclear Laboratories (CNL) has applied to the Commission to:

- Renew the Port Hope Project Waste Nuclear Substance licence WNSL-W1-2310.00/2032 for a period of 10 years
 - Consolidate 4 CNL licences issued for the remediation activities associated with the Port Hope Area Initiative
 - Approve the proposed liquid effluent release limits for the Port Hope Waste Water Treatment Plant
 - Implement a Fitness for Service, Waste Management and Decommissioning program for the Port Hope Area Initiative

The proposed changes to the clean-up criteria are not part of this licence renewal



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Purpose of Hearing

CNSC staff recommend that the Commission:

- Conclude, pursuant to paragraph 24(4)(a) and (b) of the *Nuclear Safety and Control Act*, that CNL:
 - i. Is qualified to carry on the activities authorized by the licence
 - ii. Will make adequate provision for the protection of the environment, the health and safety of persons and the maintenance of national security and measures required to implement international obligations to which Canada has agreed
- Approve the proposed licence change to remove the authorization to process, package and transport radioactive material as outlined in section 3.14 and summarized in Part Two of CMD 22-H13
- Delegate the authority to CNSC staff as set out in subsection 5.7 of CMD 22-H13
- Issue the proposed WNSL for the Port Hope Area Initiative, WNSL-W1-2310.00/2032



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PROJECT OVERVIEW



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Licences Associated with the Port Hope Area Initiative

Port Hope Project

WNSL-W1-2310.02/2022

Port Granby Project

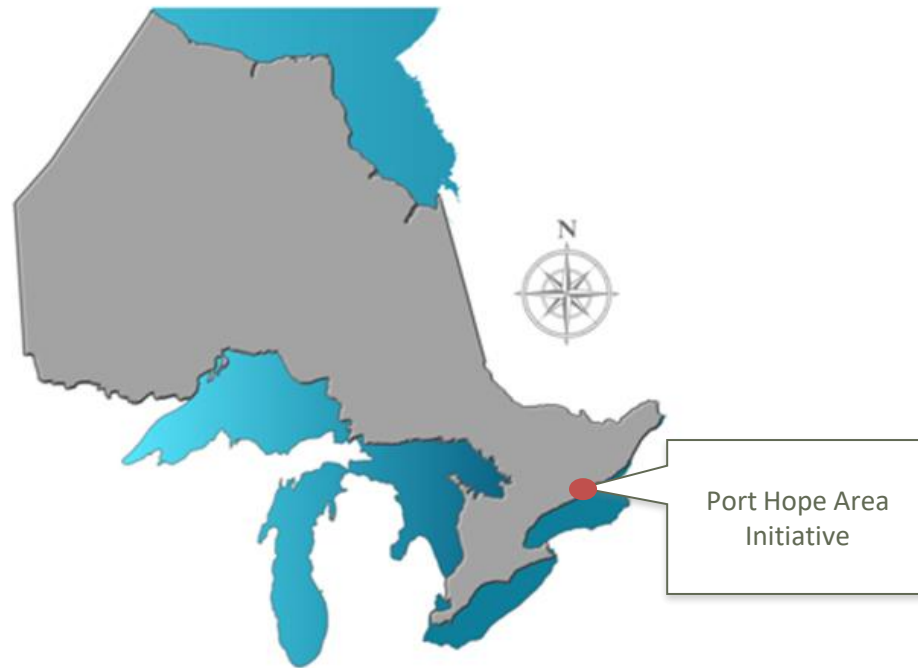
WNSL-W1-2311.00/2022

Port Hope Radioactive Waste Management Facility

WNSL-W1-344-1.8/IND (Issued by Designated Officer)

Pine Street Extension Temporary Storage Site

WNSL-W1-182.0/2022 (Issued by Designated Officer)





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Port Hope Project

- Remediate and safely manage material within the Municipality of Port Hope in an engineered above ground long-term waste management facility
- Onsite Waste Water Treatment Plant treats groundwater, surface water and leachate from within the engineered mound
- The CNSC is responsible for licensing and compliance activities for the Port Hope Project



Photo Port Hope Long-Term Waste Management Facility
Source: CNL



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Port Granby Project

- Remediate and safely manage material from the historic Port Granby waste facility in an engineered above ground long-term waste management facility
- Remediation completed in September 2021
- Transitioning to long term maintenance and monitoring
- Licence renewed in December 2021 for a 1-year period to align with the Port Hope Project licence renewal
- The CNSC is responsible for licensing and compliance activities for the Port Granby Project



Port Granby Area Remediated
Source: CNSC



CNSC Inspector at Port Granby
Source: CNSC



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Port Hope Radioactive Waste Management Facility

- Three sites used for the temporary storage of contaminated soils:
 1. Pine Street Extension - remediation completed
 2. Sewage Treatment Plant - remediation completed
 3. Strachan Street Ravine - to be completed in fall of 2022
- Remediation activities take place under the Port Hope Project Licence
- CNSC staff to confirm Port Hope Project clean-up criteria have been met



Locations of Temporary Storage Sites

Source: Google Maps



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Pine Street Extension Temporary Storage Site

- Historically used for the short-term storage of contaminated soils within the Municipality of Port Hope
- Remediation activities took place under the Port Hope Project Licence and completed in the spring of 2021
- Area to be used to support the remediation activities at neighboring Highland Drive landfill
- CNSC staff to confirm Port Hope Project clean-up criteria have been met



Pine Street Extension Temporary Storage Site
Source: Google Maps



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REVIEW OF LICENCE APPLICATION



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Assessment of CNL's Licence Application

CNSC Staff:

- Verified that the information submitted in support of the application is complete in meeting CNSC regulatory requirements
- Assessed licence application against 13 safety and control areas
- Assessed CNL's past performance over the licence period against applicable safety and control areas



Safety and Control Area

Management System

Human Performance Management

Operating Performance

Physical Design

Fitness for Service (New)

Radiation Protection

Conventional Health and Safety

Environmental Protection

Emergency Management and Fire Protection

Waste Management (New)

Security

Safeguards and Non-Proliferation

Packaging and Transport

CNSC staff conclude the application
complies with regulatory requirements



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SCA – Fitness for Service

New Proposed Licence Condition for Fitness for Service

- CNSC staff are proposing the introduction of a new licence condition for the Fitness for Service SCA following the commissioning of the Port Hope Project and Port Granby Project Long-Term Waste Management Facilities and Waste Water Treatment Plants
- CNL has submitted its Phase 3 Maintenance and Monitoring Plans for the Port Granby Project
- Proposed licence condition requires CNL to implement and maintain a fitness for service program



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SCA – Waste Management

New Proposed Licence Condition for Waste Management

- Waste management programs are required once the Long-Term Waste Management Facilities can no longer accept waste on site
- Decommissioning programs are required for the supporting infrastructure
- CNL has committed to implement the waste management and decommissioning regulatory documents for the Port Hope Area Initiative licences
- Proposed licence conditions require CNL to implement and maintain a waste management program and maintain a decommissioning plan



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SCA - Environmental Protection

New Proposed Liquid Effluent Release Limits – Port Hope

- Proposed liquid effluent release limits for the Port Hope Waste Water Treatment Plant
- Established using draft REGDOC-2.9.2, *Controlling Releases to the Environment*
 - Exposure-based approach to identify maximum releases
 - Technology-based approach to identify maximum possible releases during normal operation
- Boron release limit not required, as even without treatment, the aquatic environment is protected from boron



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REGULATORY OVERSIGHT



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Regulatory Oversight

Inspections and Events from January 2013 to September 2022

Activity	Port Hope Project	Port Granby Project	Pine St	Radioactive Waste Management
Number of Inspections	35	36	3	3
Number of Reportable Events	22	30	2	11

CNSC verify completion of corrective actions as part of ongoing regulatory oversight

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Inspections

- CNSC staff carry out a risk-informed compliance plan for CNL
- 77 inspections were conducted over 10 years – covering all applicable safety and control areas
- Non-compliances are tracked to completion using the CNSC Regulatory Information Bank and were corrected by CNL in a timely manner
- CNSC staff verify completion of corrective actions as part of ongoing regulatory oversight and prior to closing any inspection findings

All non-compliances
have been
addressed to the
satisfaction of CNSC
staff



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Reportable Events

- CNSC Licensees must report events as required by the *Nuclear Safety and Control Act*, associated Regulations, licence conditions and regulatory documents
- CNL submitted 65 reportable events for all Port Hope Area Initiative Licences since 2013
- All reportable events are presented to the Commission annually via the Regulatory Oversight Report
- 3 Event Initial Reports were presented to the Commission during the licensing period. All associated actions have been implemented with no outstanding issues or concerns

All events have been addressed to the satisfaction of CNSC staff



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PERFORMANCE ASSESSMENT



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CNSC Staff Performance Assessment

- Performance assessment based on 11 safety and control areas
 - All rated satisfactory
- Performance in 3 safety and control areas were not assessed since no requirements are in the current licences for safety analysis, fitness for service and waste management
- Assessment criteria and results are summarized in CMD 22-H13

CNL's programs meet regulatory requirements



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SCA – Radiation Protection

CNSC staff's assessment:

- CNL's radiation protection program meets the *Radiation Protection Regulations* and is effective in keeping doses to workers well below CNSC regulatory dose limits
- Action levels are established as part of the radiation protection program
- Dose to Nuclear Energy Workers remain far below 50 mSv regulatory limit
- Slight average effective dose increases reported following the start of remediation activities
 - Port Hope Project 0.018 mSv
 - Port Granby Project 0.023 mSv

CNL's radiation protection program meets regulatory requirements



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SCA – Conventional Health and Safety

CNSC staff's assessment:

- CNL has an effective conventional health and safety program
- Tools and training to identify and control hazards are in place
- Safety is maintained through programs and procedures on safety
- Five lost time injuries reported during licence period

CNL's conventional health and safety program meets regulatory requirements



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SCA – Environmental Protection

CNSC staff's assessment:

- CNL's environmental protection program is effectively implemented and meets regulatory requirements
- CNL's environmental monitoring program results confirm that the environment and human health are protected

CNL's environmental protection program meets regulatory requirements



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Environmental Protection Review

- CNSC staff conducted an Environmental Protection Review under the *Nuclear Safety and Control Act* to assess the environmental and health effects of the Port Hope Area Initiative
- The environmental review is based on:
 - CNSC regulatory oversight activities
 - the results of CNL's environmental monitoring
 - Independent Environmental Monitoring Program results
 - health studies related to the Port Hope Area Initiative
- The Environmental Protection Review report can be found in Appendix F of CNSC staff's CMD 22-H13

CNSC staff conclude
CNL has made
adequate provision for
the protection of the
environment and the
health of persons



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SCA – Environmental Protection

Liquid Effluent Releases – Port Hope Project

- Old water treatment building treats for Radium-226, Arsenic and pH
 - Used for emergencies to supplement the new waste water treatment plant
- New waste water treatment plant commissioned in 2016 with liquid effluent release limits for 10 physical parameters. Effluent release limits based on design requirements
- Average weekly and monthly liquid effluent release have been below the design requirement limits with the exception of a licence limit exceedance for Copper in June 2022

Liquid effluent releases limits are protective of the environment



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SCA – Environmental Protection

Liquid Effluent Releases – Port Granby Project

- Old water treatment building treated for Radium-226 and pH
 - Decommissioned in 2016
- New waste water treatment plant commissioned in 2016 with liquid effluent release limits for 16 physical parameters which are technology based limits.
 - Technology based release limits approved by Commission in 2019
- Average weekly and monthly liquid effluent release have been below release limits

Liquid effluent releases limits are protective of the environment



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SCA – Environmental Protection

Public Dose – Port Hope Area Initiative

PHP Estimated Maximum Effective Dose to the Public

	2016	2017	2018	2019	2020	2021	Regulatory limit
Maximum effective dose (mSv)	0.0120	0.0045	0.0275	0.0360	0.0330	0.023	1 mSv/y

PGP Estimated Maximum Effective Dose to the Public

	2016	2017	2018	2019	2020	2021	Regulatory limit
Maximum effective dose (mSv)	0.0054	0.0057	0.0200	0.0396	0.0200	0.041	1 mSv/y



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SCA – Environmental Protection

Performance – Port Hope Project

Two notable environmental protection related events occurred during the licence period:

- Release of untreated water from the Port Hope Project June 23, 2017 reported in Event Initial Report 17-M38
 - Order issued July 7, 2017 and amended August 2, 2017 to extend completion date by 5 days as requested by CNL
 - Order required CNL to Implement a more robust water management and contingency plan and improved emergency management plans and equipment
- Exceedance of copper effluent release limit from Port Hope Project Waste Water Treatment Plant in June 2022, Event Initial Report 22-M38
 - Copper fittings identified as source of contamination
 - Conducted extent of condition and replaced similar fittings

CNSC staff
were
satisfied
with CNL's
actions to
prevent
recurrence



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OTHER MATTERS OF REGULATORY INTEREST



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Other Matters of Regulatory Interest

CNSC staff have verified that CNL:

- Is exempt from the *Cost Recovery Fees Regulations*
- Maintains a suitable financial guarantee
- Implements and maintains a suitable Public information and disclosure program that meets REGDOC 3.2.1 *Public Information and Disclosure*

CNSC staff ensure CNL cost recovery, financial guarantee are in good standing and Public Information and Disclosure program is effective



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INDIGENOUS AND PUBLIC ENGAGEMENT



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Indigenous Engagement

Activities Related to this Renewal:

March 2022	Notice of Public Hearing
March/April	Follow-up phone calls and emails on notice of public hearing including information on the process, how to get involved and availability of participant funding
June 24, 2022	Virtual meeting with Curve Lake First Nation
June 2022	Indigenous Nations and communities awarded funding through CNSC's Participant Funding Program
August 16, 2022	Virtual meeting with Mississaugas of Scugog Island First Nation

Indigenous Nations and Communities:

- Alderville First Nation
- Curve Lake First Nation
- Hiawatha First Nation
- Mississaugas of Scugog Island First Nation
- Chippewas of Beausoleil First Nation
- Chippewas of Georgina Island First Nation
- Chippewas of Rama First Nation
- Mohawks of the Bay of Quinte
- The Métis Nation of Ontario



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Public Engagement

Event	Date
Announcement for Notice of Hearing	March 7, 2022
Mail Drop	August 2022
Port Hope Fall Fair	September 16-18, 2022



CNSC staff at 2022 Port Hope fair
Source: CNSC



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Participant Funding Program

Funding was provided to assist Indigenous Nations and communities and members of the public in providing valuable information directly to the Commission

CNSC awarded \$36,320.00 to the following recipients:

- Curve Lake First Nation
- Mississaugas of Scugog Island First Nation
- Anna Tilman
- Port Hope Community Health Concerns Committee



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Main Themes from Interventions

- A total of 28 interventions were received for the Port Hope licence renewal.
- 21 of the interventions indicated support from local businesses, groups and individuals.
- 7 Interventions identified concerns with the following themes:
 1. Indigenous engagement and consultation
 2. Licence period too long
 3. Long-term environmental and health impacts from the legacy waste



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CONCLUSIONS AND RECOMMENDATIONS



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Conclusions

Based on the technical assessments conducted of CNL's application and supporting information, CNSC staff conclude that:

- The application complies with the regulatory requirements
- Health and safety of workers and the public was maintained and the environment continues to be protected
- The licensee's performance during the current licence period was satisfactory and met regulatory requirements



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Recommendations

CNSC staff recommend that the Commission:

- Conclude, pursuant to paragraphs 24(4)(a) and (b) of the *Nuclear Safety and Control Act*, in that CNL:
 - i. Is qualified to carry on the activities authorized by the licence
 - ii. Will make adequate provision for the protection of the environment, the health and safety of persons and the maintenance of national security and measures required to implement international obligations to which Canada has agreed
- Renew the Waste Nuclear Substance licence to authorize CNL to continue its authorized activities at the Port Hope Area Initiative from January 1, 2023 to December 31, 2032
- Authorize the consolidation of the four (4) CNL licences issued for the remediation activities associated with the Port Hope Area Initiative
- Approve the proposed liquid effluent release limits for the Port Hope Project Waste Water Treatment Plant as summarized in section 5.5 of CMD 22-H13
- Issue the proposed Waste Nuclear Substance Licence for the Port Hope Area Initiative, WNSL-W1-2310.00/2032
- Authorize the delegation of authority as set out in subsection 5.7 of CMD 22-H13



Canadian Nuclear
Safety Commission

Commission canadienne
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